

WHAT IS CLAIMED:

1. A continuous passive motion apparatus, said apparatus comprising:

a main support assembly for supporting at least part of the body of a user of the apparatus and including a first support member for, in one mode of use of the apparatus, providing a substantially horizontal support surface defining a plane and a second support member, for, in one mode of use of the apparatus, providing a substantially horizontal support surface disposed in said plane, said second support member being pivotable relative to said first support member such that pivoting movement of the second support member in said plane with respect to the first support member provides passive bending movement of a part of the body of a user supported by said second support member relative to a part of the body supported by said first support member, said second support member having a central axis and further being rotatable about said central axis to provide rotational movement of a part of the body supported by said second support member; and

motorized drive means for, when activated, selectively providing said pivoting movement of said second support member relative to said first support member on a continuous, cyclically repeated basis to provide continuous passive bending movement of the part of the body supported by said second support member and selectively providing rotational movement of said second support member on a continuous cyclically repeated basis to provide continuous passive rotational movement of the part of the body supported by said second support member.

2. A passive motion apparatus in accordance with claim 1 further comprising a calf support assembly connected to said main support assembly at one end of said main support assembly so as to support at least part of the legs of the user, said calf support assembly being connected to said main support assembly by an articulated connection for enabling said calf support assembly to be at least partially stowed away so as to enable a user to be positioned on said main support assembly without interference from said calf support assembly.

3. A passive motion apparatus in accordance with claim 2 wherein said calf support assembly includes a support platform and wherein said articulated connection is movable to a position wherein said platform is supported in a plane elevated with respect to the first-mentioned plane such that lower portions of the legs of the user are elevated with respect to the remainder of the body of the user and such that upper portions of the legs of the user extend at substantially right angles with respect to the lower portions of the legs and the trunk of the body of the user.

4. A passive motion apparatus in accordance with claim 3 wherein said articulated connection of said calf support assembly includes at least two pivotable links for enabling movement of said support platform into the first-mentioned plane and for enabling the spacing between said calf support assembly and said main support assembly to be varied.

5. A passive motion apparatus in accordance with claim 1 wherein said motorized drive means comprises at least one electric drive motor and control means for selectively controlling the operation of said at least one motor.

6. A passive motion apparatus in accordance with claim 5 wherein said control means comprises programmable means for controlling the at least one motor so as to control the amount of pivoting movement of said second support member relative to said first support member.

7. A passive motion apparatus in accordance with claim 6 wherein said control means includes a stop switch adapted to be operated by a user of the apparatus undergoing said passive movement to terminate the relative pivoting movement of said second support member.

8. A passive motion apparatus in accordance with claim 1 wherein said motorized drive means comprises a first motor for providing said pivoting movement and a second motor for providing said rotational movement.

9. A passive motion apparatus in accordance with claim 1 further comprising a pair of laterally spaced arm rests affixed to said main support assembly for movement relative thereto.

10. A passive motion apparatus in accordance with claim 1 wherein said main support assembly comprises a first part, and a second part selectively pivotable about a horizontal axis with respect to the first part between an inclined position and an upright position.

11. A passive motion apparatus in accordance with claim 10 wherein said second support section is adapted to support the lumbar region of the body of a user and forms at least a portion of said first part.

12. A passive motion apparatus in accordance with claim 11 further comprising a pair of laterally spaced arm rests affixed to said main support assembly for movement relative thereto such that said arms lie alongside the main support assembly in said inclined position and are disposed adjacent said second support section so as to form armrests in said upright position.

13. A passive motion apparatus in accordance with claim 1 wherein said second support member is selectively tiltable to a position wherein said second elevated support member forms a non-zero angle with respect to said first support member.

14. A passive motion apparatus for providing passive motion of at least the lower trunk and legs of a user relative to the remainder of the body of the user, said apparatus comprising:

a first elevated support member for, in use, supporting at least an upper trunk portion of a user;

a second elevated support member, movable with respect to said first support member, and disposed, in one use of the apparatus, at a common level with, and

adjacent to, said first support member, for, in use, supporting the lumbar region of the user;

a third elevated support member, selectively movable to a plane elevated with respect to said common level and disposed adjacent to said second support member, for supporting lower portions of the legs of the user; and

motor means for, when activated, selectively providing continuous cyclically repeated pivotable movement of said second support member about a first pivot axis between spaced end positions so as to provide continuous passive bending motion of the lumbar region of the user and for, when activated, selectively providing continuous cyclically repeated rotational movement of said second support member about a second pivot axis orthogonal to said first pivot axis so as to provide continuous passive rotational motion of the lumbar region of the user.

15. A passive motion apparatus in accordance with claim 14 further comprising a further elevated support member, movable with respect to said first support member and disposed, in one mode of use of the apparatus, at a common level with, and adjacent to, said first support member, for, in use, supporting at least a portion of the head of the user, said second support member being mounted for pivotable movement relative to said first support member, said motor means, when activated, selectively providing continuous cyclically repeated pivotable movement of said further support member about a vertical axis between spaced end positions so as to provide continuous passive bending motion of the cervical region of the body of the user.

16. A passive motion apparatus in accordance with claim 15 wherein said motor means comprises a separate motor and motor drive assembly for said second support member for, when activated, providing said continuous cyclically repeated rotational movement of the lumbar region of the user supported on said second support member.

17. A passive motion apparatus in accordance with claim 16 wherein said apparatus further comprises motorized cervical rotation means for said further support member for,

when activated, providing continuous cyclically repeated rotational movement of the neck and head of a user between first and second end positions.

18. A passive motion apparatus in accordance with claim 14 wherein said third elevated support member comprises a support platform and includes means for pivotably mounting said support platform with respect to said third support member so as to enable angular and longitudinal adjustment of the support platform relative to the first support member.

19. A passive motion apparatus in accordance with claim 14 wherein said second support member is selectively tiltable to a position wherein said second support member forms a non-zero angle with respect to said first support member.

20. A passive motion apparatus in accordance with claim 15 wherein said further support member is selectively tiltable to a position wherein said further support member forms a non-zero angle with respect to said first support member.

21. A passive motion apparatus in accordance with claim 14 further comprising control means for said motor means for, when activated, simultaneously providing both said pivotable movement and said rotational movement.

22. A continuous passive motion apparatus, said apparatus comprising:

a main support assembly for supporting at least part of the body of a user of the apparatus and including a first support member for providing a substantially horizontal support surface defining a first plane, a second support member for, in one configuration of the apparatus, providing a second support surface disposed in said plane, a third support member including for, in said one configuration of said apparatus, providing a third support surface disposed in said plane, said second and third support members each being pivotably mounted so as to be movable, in said one configuration, in said plane relative to said first support member such that pivoting movement of the second and third support members with respect to the first support member provides

passive bending movement of a respective part of the body of a user supported by said second and third members relative to a part of the body supported by said first support member, said second and third support members each being further pivotably mounted about a respective central pivot axis thereof so as to enable rotation of the support surface thereof about said central pivot axis such that rotational movement of said second and third members provides passive rotational movement of a respective part of the body of a user supported by said first support member;

a leg support assembly connected to said main support assembly at one end of said main support assembly so as to support at least part of the legs of the user, said leg support assembly being movable to a second plane elevated with respect to said first plane;

motorized drive means for, when activated, selectively providing continuous cyclically repeated pivoting movement of said second and third support members about the respective vertical axes thereof relative to said first support member and selectively providing continuous cyclically repeated rotational movement of said second and third support members about the respective central pivot axes thereof relative to said first support member.

23. A passive motion apparatus in accordance with claim 22 wherein said motorized means comprises a first motor for providing pivoting movement of said second support member, a second motor for providing pivoting movement of said third support member, a third motor for providing rotational movement of said second support member, a fourth motor for providing rotational movement of said third support member and programmable means for controlling selective activation of said first, second, third and fourth motors.

24. A passive motion apparatus in accordance with claim 22 wherein said second support member is selectively tiltable to a position wherein said second elevated support member forms a non-zero angle with respect to said first support member.

25. A passive motion apparatus in accordance with claim 22 wherein said third support member is selectively tiltable to a position wherein said third support member forms a non-zero angle with respect to said first support member.

26. A continuous passive motion apparatus, said apparatus comprising:
a body support unit comprising:

at least one support member for, in use, supporting at least the upper trunk and head of a user;

a second support member, movable with respect to said at least one support member and disposed adjacent to said at least one support member, for, in use, supporting the lumbar region of the user;

a third support member, disposed adjacent to said second support member and movable to a different plane therefrom, for engaging the calf portions of the legs of the user; and

motor means for, when activated, at least providing continuous cyclically repeated lateral pivoting movement of said second and third support members together, relative to said at least one support member;

a stationary base for supporting said body support unit; and

means for selectively providing pivoting of said at least one support member of said body support unit relative to said stationary base, and said second and third support members, between a first position wherein, in use, a user is supported in seated posture on the second support member of the said body support unit with the upper trunk and head resting against said at least one support member, and a second, substantially horizontal position wherein, in use, a user is supported in a reclining posture on said body support unit.

27. A passive motion apparatus in accordance with claim 26 wherein said at least one support member comprises a first support member for supporting the head of a user and a further support member for supporting the upper trunk of a user.

28. A passive motion apparatus in accordance with claim 26 wherein said at least one support member and said second support member are pivotable relative to each other so as to form a non-zero angle therebetween in the first position of said body support unit.

29. A passive motion apparatus in accordance with claim 26 wherein said second support member extends outwardly at a non-zero angle with respect to said at least one support member so as to act as a seat in said first position of said body support unit.

30. A passive motion apparatus in accordance with claim 26 wherein at least one support member of said body support unit includes a first support member for supporting the head of a user and a further support member for supporting at least the upper trunk of a user, and wherein said apparatus further comprises movement control means for providing continuous cyclically repeated lateral pivotable movement of the first support member with respect to said further support member.

31. A passive motion apparatus in accordance with claim 30 wherein said movement control means further comprises cervical rotation means for controlling movement of said first support member so as to provide rotational movement of the head and neck of the user.

32. A passive motion apparatus in accordance with claim 31 wherein said movement control means controls movement of said first member so as to produce continuous, cyclically repeated rotational movement of the head and neck of the user between first and second end positions.

33. A passive motion apparatus in accordance with claim 26 further comprising cervical rotation means for said first support member for, when activated, providing continuous, cyclically repeated rotational movement of the neck and head of a user between first and second end positions.

34. A passive motion apparatus in accordance with claim 26 further comprising control means for controlling movement of said second and third support members to produce continuous, cyclically repeated rotational movement between first and second end positions of the part of the body received on said second and third support members.

35. A passive motion apparatus in accordance with claim 34 wherein said control means comprises a handheld computer for enabling of control speed, direction and amount of pivoting movement and speed, direction and amount of rotational movement.

36. A passive motion apparatus in accordance with claim 35 wherein said handheld computer further enables setting of a time period for said pivoting movement and for said rotational movement.

37. A continuous passive motion apparatus, said apparatus comprising:

a main support assembly for supporting at least part of the body of a user of the apparatus and including first, second and third support members for supporting different parts of the body of the user, at least one of said support members being pivotably mounted and being movable relative to the remaining support members of the main support assembly such that movement of the at least one support member with respect to the remaining support members provides passive movement of a part of the body of a user supported by said at least one member relative to a part of the body supported by the remaining support members;

motorized drive means for, when activated, providing said movement of said at least one support member relative to said remaining support members on a continuous, cyclically repeated basis to provide continuous passive movement of the part of the body supported by said at least one support member;

said at least one of said support members of said main support assembly being adapted to support the head of a user thereon and said apparatus further comprising motorized cervical rotation means for said at least one support member of said main support assembly for, when activated, providing continuous, cyclically repeated,

rotational movement of the at least one support member about a rotational pivot axis so as to provide passive rotational movement of the neck and head of the user when the head of a user is supported on said at least one support member.

38. A passive motion apparatus in accordance with claim 37 further comprising a leg support assembly connected to said main support assembly at one end of said main support assembly and adjustable to support lower portions of the legs of the user in an elevated plane relative to said main support assembly such that the lower portions of the legs of the user are elevated with respect to the remainder of the body of the user.